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The Immune Response in Lung Carcinoma.

The present project is based on the assumption that the tumor site is the most favorable place for investigating the immune response to the growth of a tumor, since antigens, antibodies and reactive lymphocytes are more concentrated there than in the general circulation.

Using both pleural effusions and eluates of solid tumors, immunoglobulins were recovered according to procedures previously described. It was found that the fractions isolated from both eluates and effusions consisted almost entirely of IgG with small amounts of IgA and IgM and very little other serum protein contaminants. The immunoglobulins isolated from 9 eluates and 16 effusions of adeno and squamous cell carcinomas of the lung were tested in indirect immunofluorescence against tissue cultures and suspensions of lung carcinomas. They exhibited bright positive immunofluorescence in almost all cases and showed no reaction with tissues of normal adult and fetal lung or with cells of nonpulmonary carcinomas. Six effusions of nonpulmonary tumors used as controls showed no such reactivity.

Preliminary assays were recently conducted with bronchial washings of patients with and without lung cancer, from which immunoglobulins were isolated and assayed in indirect immunofluorescence. The results of the first washings tested, were similar to those obtained with eluates and effusions. More cases will be screened in order to assess the potential value of this technique.

Progress was also made in the preparation of immunoadsorbents to be used in the recovery of lung tumor antigens needed for heterologous immunization. Immunoglobulins isolated from effusions were absorbed with an insoluble normal human serum-normal lung polymer, then polymerized with ethylchloroformate to be used as an immunoadsorbent for the recovery of tumor-associated antigens from the extracts of human lung carcinomas. This material will be used to immunize rabbits in order to produce a high titer heterologous antiserum against lung tumor-associated antigens.

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